Sleep Quality and Blood Lipid Composition Among Patients with Diabetes

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Abstract

Background: Recent literature has mentioned that people with sleep disorder, experience insulin sensitivity reduction and accordingly higher levels of blood glucose.

Objectives: This study aimed to investigate the relationship between sleep quality and blood lipid composition in patients with diabetes referring to Minoodar health center in Qazvin, Iran in 2017.

Methods: Sleep duration and quality were assessed in 347 patients with diabetes using the Pittsburgh sleep quality index (PSQI). The glycosylated hemoglobin A1c (HbA1c) test was used to measure the glycemic control and total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), triglycerides (TG), and high-density lipoprotein cholesterol (HDL-C) were used to determine blood lipid composition of the patients. Multiple regression analyses were applied to examine the associations between sleep measures and HbA1c and lipid parameters using SPSS version 20.

Results: The patients in the poor sleep quality group had higher levels of fasting blood sugar (FBS) (146.07_57.06 versus 132.8_53.3 mg/dL, P = 0.02), body mass index (BMI) (29.1_3.9 versus 27.6_4.2 kg/m2, P = 0.005) and total cholesterol (209.9_53.4 versus 193.4_45.8, P = 0.02). Furthermore, the patients with short sleep duration had higher total cholesterol level compared with long sleep and medium sleep duration group (202.3_50.2 versus 196.6_47.7 and 195.7_47.4, respectively, P = 0.05). Among different PSQI measures, subjective sleep quality was associated with lower TC and TG in unadjusted models (_ = -0.0.1, P = 0.05). Furthermore, greater sleep disturbance was positively linked with higher levels of TC and TG (_ = 0.1, P = 0.01 and _ = 0.02, P = 0.05).

Conclusions: In an Iranian population with diabetes living in Qazvin city, sleep disorder is common and as study findings revealed sleep quality was recognized as an influencing factor on some of the lipid profiles, including TC and TG. Thus sleep assessment of patients with type 2 diabetes to find the early recognition of their sleep disorder should be considered an important part of the patients' treatment.

Keywords: Diabetes, Lipid Composition, Glycemic Control, Sleep Disorder